

Calcutta Academy Of Radiology

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Hi Namaskar friends,

As you all know India is reeling under tremendous pressure of second wave of Corona pandemic, though the situation is much better than what it was a month back. But there is a silver lining also - we have vaccinated around 20 crores {200 millions} out of the massive population of around 1.3 billions.

There was a big debate whether CT scan is overused in COVID, I personally feel that all us have seen so many cases where RT-PCR is negative and CT scan has clearly shown the disease. As far as X-ray is concerned, it will never show the details of the disease as good as CT scan. So, I think that CT scan is not overused, but definitely radiation is a concern. But present day machines are really good and try to keep radiation dose as low as reasonably achievable. Having said that a follow up CT scan should be advised only if patient has some residual or persisting clinical symptoms.

It is quite evident that there are lot of persons having mental health issues due to this pandemic. It is really difficult to maintain mental balance in such challenging circumstances. But, people must learn to cope with such issues and should seek treatment it is leading to a major depression.

A few weeks back, there was an article in a reputed journal criticizing the Indian PM for second wave of Corona. It is absolutely right to criticize a head of the government if he/she has faltered, but is it prudent for a reputed international medical journal to get involved in politics and pass a judgement? It is really disgraceful for a medical journal to indulge in politics, it has only helped to reduce its reputation. In future every medical journal might have articles which has political overtones. If it was prudent for the reputed journal to criticize Indian PM, why it did not do same for heads of various other countries which had suffered similar fate with Corona pandemic albeit with higher mortality rate than India. Why India was specifically targeted?

We are happy to inform you that we have recently launched a blog, where we publish interesting cases, articles, quizzes and information about various meetings. We are uploading our newsletters also on this blog from where you can download it in PDF format. We will be happy to publish your academic material also. In subsequent pages we have provided the link of the blog also.

It will be 2 months before the next issue of our newsletter comes out. Till then take care and stay safe.



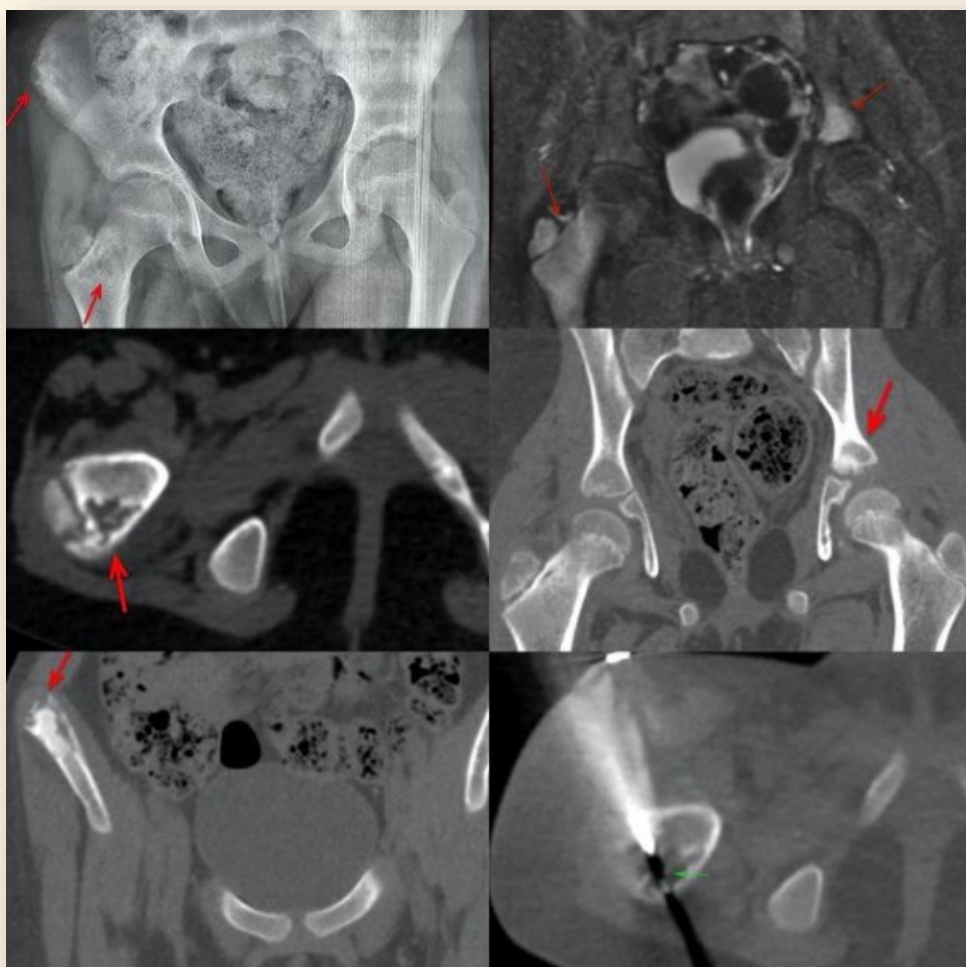
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Twitter: @bhavinj

Dr. Bhavin Jankharia needs no introduction to the Radiology fraternity. As you all know he is a renowned Radiologist and academician and has contributed immensely in propagating Radiology education. Presently, he is a Consultant Radiologist at Picture This by Jankharia. He is also a Trustee of Radiology Education Foundation. He has consented to share some of his work with us, which will help all the Residents as well as practicing Radiologists. Here is some information about him in brief.

- He has written 5 books, 35 chapters, 57 articles (PubMed listed)
- Presented 32 posters
- More than 1500 invited lectures over 27 years
- Editor-in-Chief, Indian Journal of Radiology & Imaging (2007-2012)
- Latest Book (2019): Computed Tomography of Interstitial Lung Diseases
- Hon. Visiting Consultant – Radiology – Tata Medical Centre, Kolkata

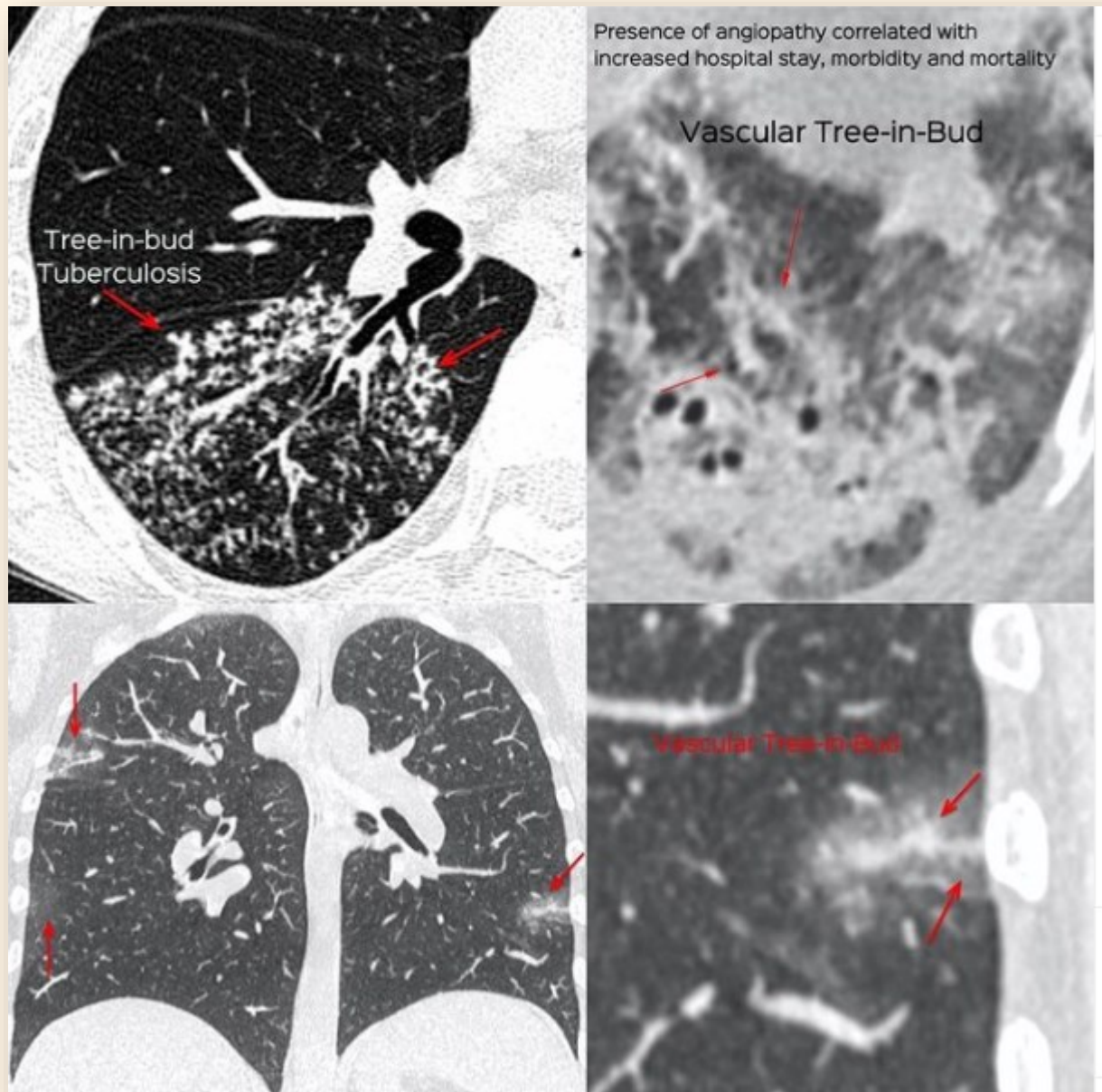
Case I - Chronic Non-Bacterial Osteitis



This 8-years old girl presented with pain in the right hip. The radiograph showed areas of osteolysis and sclerosis in the right femoral neck and greater trochanter and in the right iliac crest. The MRI showed another lesion in the left acetabular roof. All 3 lesions were well seen on CT scan. A CT guided biopsy of the lesion involving the right trochanteric physis and subjacent bones was negative for any definitive aetiology.

Based on the multiple lesions and the clinical presentation and biopsy findings, a diagnosis of CNO was made. She delayed her treatment but eventually responded to pamidronate.

Case II

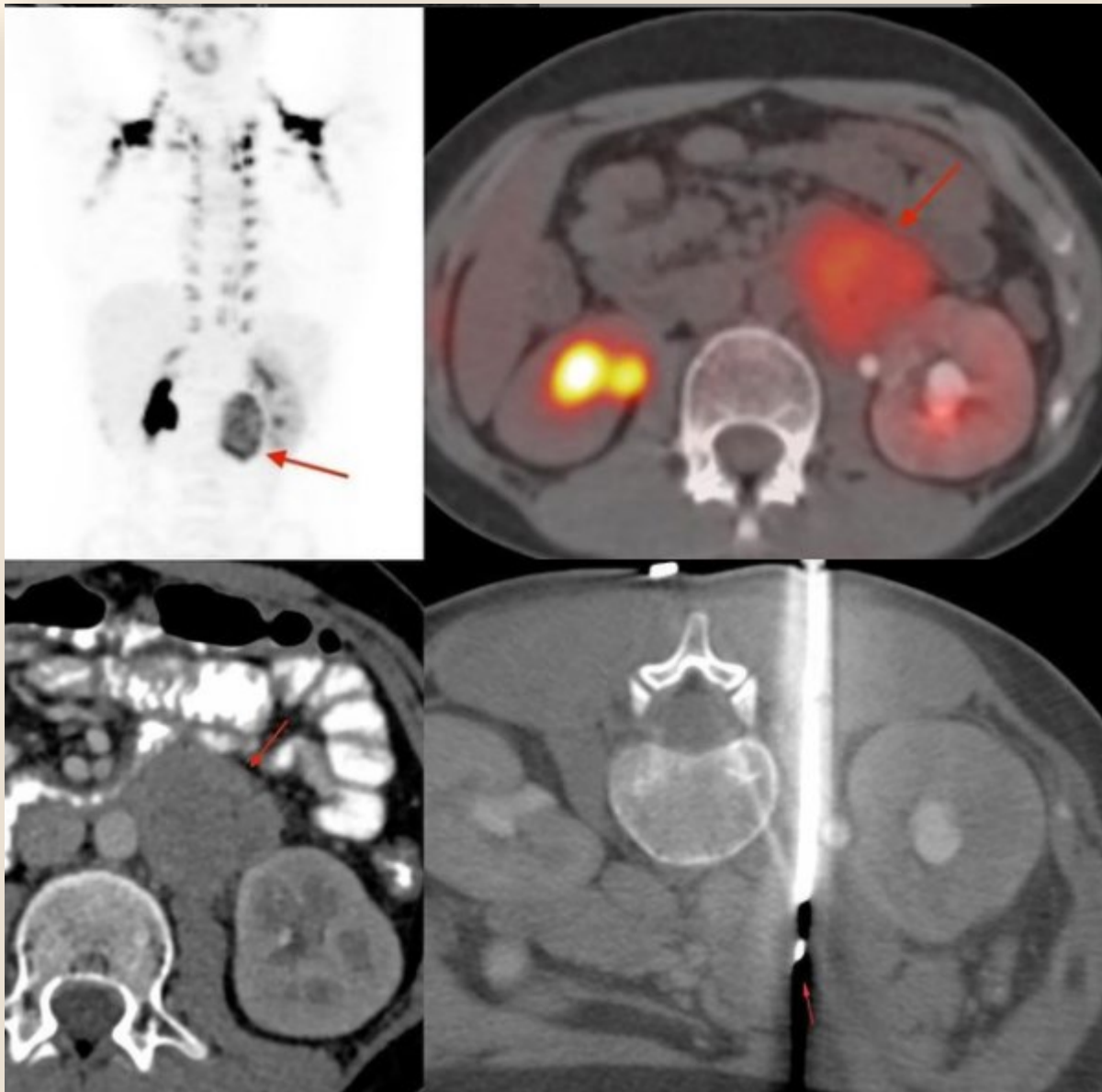


V a s c u l a r “ T r e e - i n - B u d ”

The vascular “tree-in-bud” appearance has been recently described by Brijesh Patel from the Royal Brompton in London and his colleagues. This refers to the presence of branching peripheral vessels, in a way, similar to the bronchial “tree-in-bud” (top left) we see with infectious bronchiolitis / tuberculosis. This vascular “tree-in-bud” (top right) is supposedly a marker of a thrombotic vasculopathy with angiogenesis and micro-thromboses. The presence of this sign in admitted patients resulted in poorer prognosis in their study (AJRCCM. 2020 Jul 15;rccm.202004-1412OC).

India is unique among many countries that non-admitted, less symptomatic or sometimes pre and asymptomatic individuals get CT scans done. Here is one such patient who had a few foci of Covid-19 pneumonia (bottom left), one of which showed a vascular “tree-in-bud” (bottom right). She recovered without any complications.

Case III



Retroperitoneal IgG4 - Easy Biopsy - Tough Diagnosis

This is a 11-years old boy who had fever and abdominal pain. USG showed a retroperitoneal left para-aortic mass, confirmed by CT scan. A PET/CT was done to look for other lesions in the body, but this was the only one.

The CT guided biopsy was easy to do in the prone position, under sedation with an 18G coaxial biopsy gun.

The initial diagnosis was inflammation. Then they looked for IgG4 and found some features that suggested IgG4 disease. Eventually, a multi-disciplinary discussion confirmed that diagnosis but it took some time and effort to get there. IgG4 is not an easy diagnosis to make.

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Idiopathic Spinal Cord Herniation

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No conflicts of interest/ No financial disclosures

The first case of Idiopathic spinal cord herniation (ISCH) was reported in 1974 by Wortzman et al [1, 2]. The condition is characterized by a ventral dural defect of unknown pathogenesis, through which the spinal cord herniates and it is most frequently encountered between levels T3 and T7 [3]. (Figure 1,2) The unique features of the thoracic spine, which may predispose to this condition, compared with other spinal segments, include the anterior positioning of the thoracic spinal cord, the kyphosis of the thoracic spine, and the anterior physiologic movements of the spinal cord due to cardiac, pulmonary, and flexion and extension movements [4]. Due to the rarity of the condition, in combination with the variability of clinical symptoms and misdiagnoses at presentation the mean duration of symptoms before a diagnosis of ISCH is established is 40 months. ISCH is relatively more common in females (67/33, female to male ratio), frequently presenting in the sixth decade of life (with a range of 22–78 y) [5]. ISCH in paediatric age group is extremely rare with only a single published case in a 12-year-old girl [6].

ISCH is a rare cause of progressive myelopathy with variable clinical presentations frequently encountered clinically as Brown-Sequard syndrome, although other presentations such as gait dysfunction, sphincter, and sexual disturbances, progressive paraparesis, sensory loss, chest and back pain have been reported [7,8].

Imaging features of ISCH are characteristic with typical features demonstrated on MRI on both axial and sagittal images. Sagittal T2 images demonstrate expansion of the dorsal subarachnoid space, and a ventrally displaced spinal cord with anterior C- or S-shaped angulation. On axial images there is antero-lateral displacement of the cord with loss of the normal intervening CSF signal between the cord and anterior theca. Spinal cord may demonstrate focal high T2 signal at the site of herniation indicating myelopathy, which if present indicate poor prognosis is poor [6-8].

ISCH can be managed surgically or conservatively. Surgical management involves reduction of the herniated spinal cord and closure of the ventral dural defect. Other surgical treatments described in literature include duraplasty, and widening of the dural defect [10,11,12]. The main indications for surgical treatment are progressive myelopathy or the presence of a motor deficit.

Idiopathic Spinal Cord Herniation

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No conflicts of interest/ No financial disclosures



Figure 1
Sagittal T2 showing anterior herniation of the thoracic cord (arrow) at level of T3 in keeping with ISCH



Figure 2
Showing T2 axials at levels a, b and c.

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Link is here

[**CAR BLOG**](#)

We are on YouTube
You can send your good case to us. We will publish it in our channel.



From the pages of history



The age of Barium and Russel D. Carman (1875-1926)

Anup K. Sadhu

The widespread use of bismuth compounds as contrast material for G I Radiology did not last long for its toxicity and cost. Carl Bachem and Hans Gunthar (1910) were first to set out for barium sulphate --a nontoxic, inexpensive, easy to prepare substance and still produce rich contrast pictures. They prepared barium sulphate in a way that "thus it can be given in the form of wafers, capsules, as an emulsion, a shake mixture or paste".

It should be noted that Cannon reported on the virtues of barium as early as 1904, 6 yrs before it was introduced in Europe.

...The major controversy in G I radiology revolved around the respective merits of fluoroscopy and radiography. The ability to detect direct evidence of disease processes, rather than relying on indirect signs required the technical methods for demonstrating the gastric mucosa.

However, two schools were at war during that time.

The stage was set for last battle between advocates of fluoroscopy led by Russel D. Carman and the champions of plate radiography led by Lewis Cole.

Russel d Carman was head of section of Roentgenology at the Mayo clinic and co-author with Albert Miller of "The textbook of Roentgen diagnosis of diseases of the alimentary canal".

Carman primarily relied on the fluoroscope for diagnosis and only exposed a few plates per patient to clear up a doubtful point or to record some unusual feature which he later want to show students or other physicians.

As Carman and Miller wrote in 1917 in their text book

"we believe that advantages of the fluoroscopic screen in the examinations of the G I tract can hardly be too strongly emphasised. Only by its use can exact information be obtained as to mobility and flexibility, the peristalsis or antiperistalsis etcand in these respects a few minutes screening is equivalent to hundreds of plates."

From the pages of history

The vast number of cases at the Mayo clinic offered Carman many examples of virtually all pathological conditions. In 1919 alone he and his staff performed more than 50,000 Xray examinations.

According to Carman, in determining whether a stomach was normal, account must be taken of its length, breadth, capacity, position, form, tonus, mobility, peristalsis and motility. Carman found that his fluoroscopic observations were greatly enhanced by direct palpation of the abdomen. He recommended the use of a lead protective apron and gloves and developed his own fluoroscopic technique where it would take an average of 5 mins to adequately examine the stomach and duodenum.

Carman is perhaps best known for the sign of ulcerating gastric cancer that bears his name.

“when the ulcer is on the vertical portion of the lesser curvature or on the posterior wall near the lesser curvature, approximation of the walls of stomach by palpation causes a dark, slightly eccentric shadow of the barium filled crater to appear on the screen.

The resemblance to a meniscus is so obvious that the word aptly applies to the sign”

Carman’s most celebrated diagnosis was made in 1925. Returning from Europe as the newly elected President of the American Roentgen Ray Society, Carman suffered a severe gastric upset.

Carman stood gaily before the screen where thousand of patients confronted him. In the darkness the x-ray tube gave out its steady drone. No other sounds were heard –his associates were dumb as they gazed on a distorted stomach shadow. Finally, they found voice, **Spasm**, they told Dr carman evasively. They would make some film.

Carman returned to his office .It was gray afternoon. When the films were ready, his assistants could not withhold them. Gravely they were laid before the chief.

Holding the films towards the window ,Carman announced his diagnosis just he had done so many thousands of times before “ Cancer of stomach and inoperable”



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Joint Editor – IJRI
Secretary, Musculoskeletal Society of India.

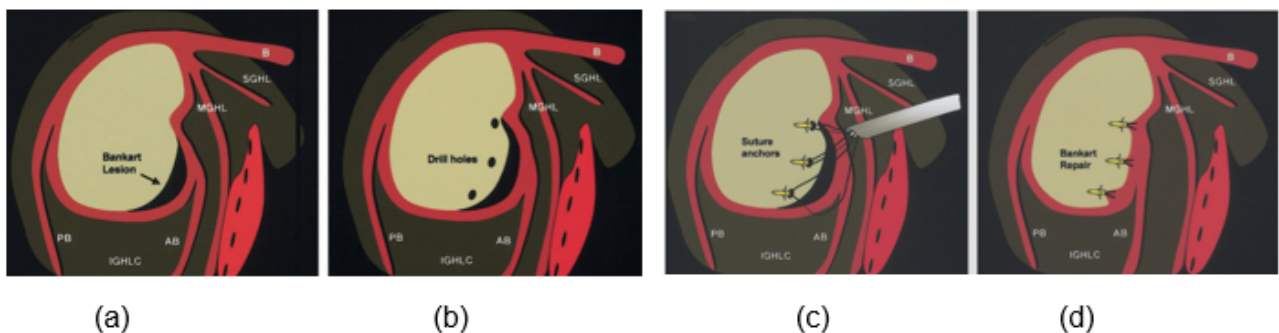
MR imaging of post-operative shoulder joint - Surgery for glenohumeral instability

The surgeries for glenohumeral instability are of two types

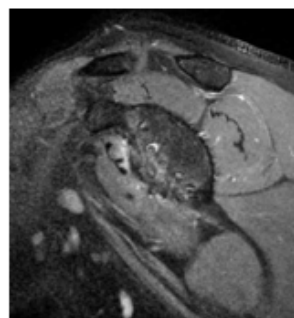
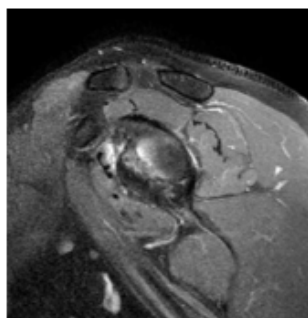
Anatomic repair – Aims to restore continuity of Labroligamentous complex and underlying glenoid i.e. to repair any damage

Extra-anatomic / Non-anatomic reconstruction – Aims to prevent any further disability – usually utilized in recurrent dislocation (Underlying injuries within the joint may not be repaired)

Anatomic repair

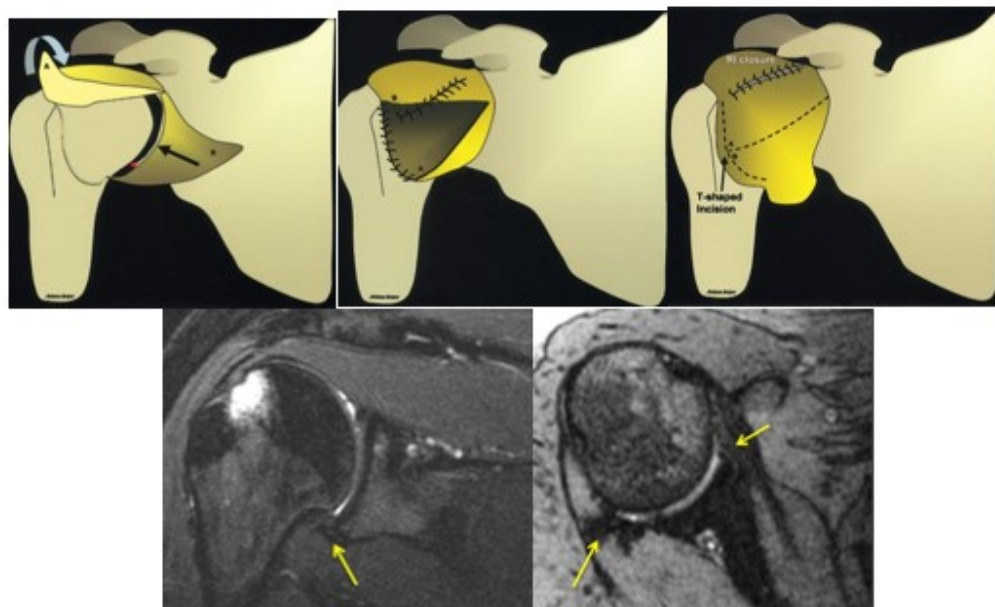


Schematics in the sagittal plane show Bankart lesion before **(a)**, during **(b, c)**, and after **(d)** surgical treatment. **(a)** Bankart lesion is represented by separation of the antero-inferior labrum from the glenoid bone (arrow). **(b)** Holes are drilled in the glenoid bone at 3-, 4-, and 5-o'clock positions. **(c)** Suture anchors are passed through the drill holes. **(d)** The labrum is reattached to the glenoid bone.



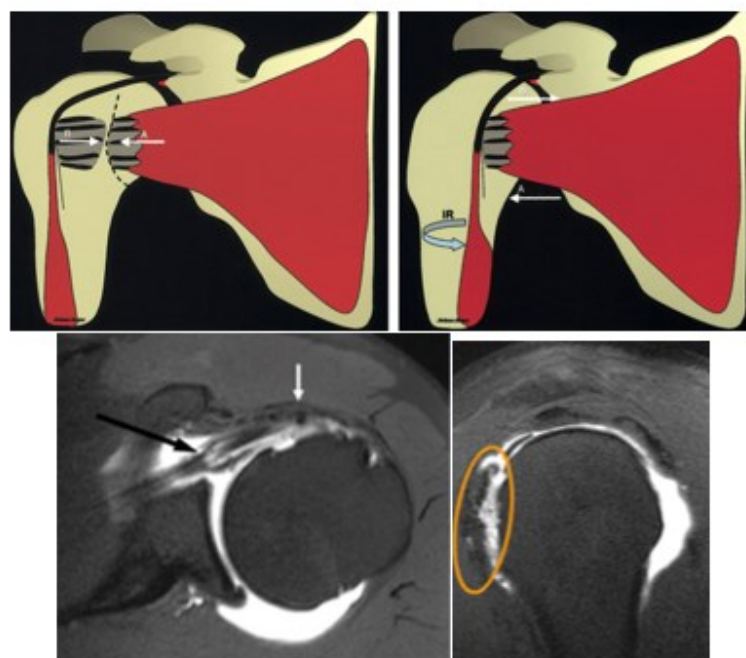
Extra anatomic repair

Capsular shift procedure



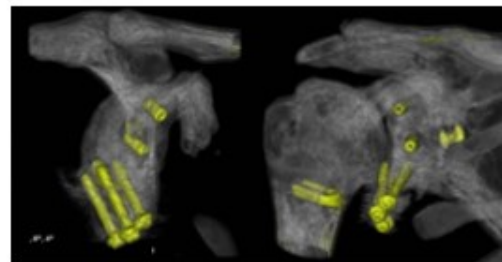
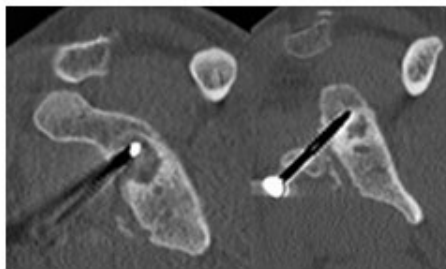
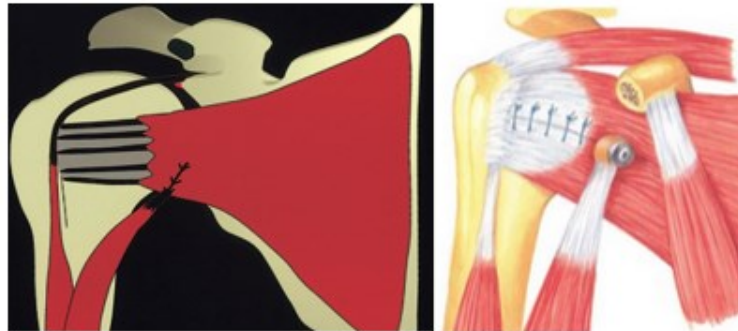
The inferior part of the capsule is shifted in the superior direction, and the superior part of the capsule is shifted in the antero-inferior direction to overlap it. Anterior band of IGHL and MGHL are reattached.

Putti Platt procedure



Shortening of the anterior capsule and subscapularis muscle

Bristow-Helfet procedure



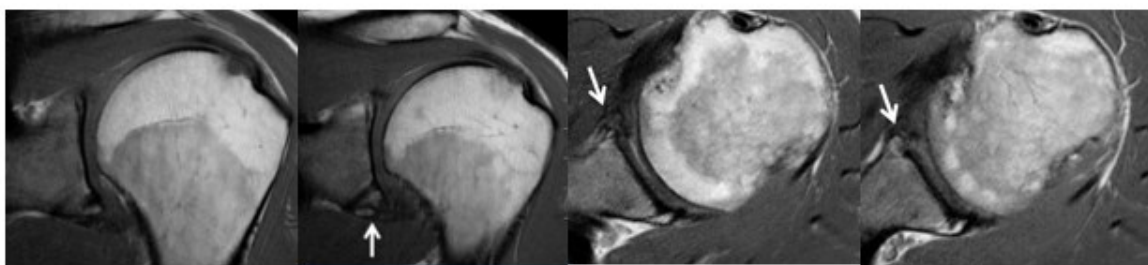
Coracoid process and the short head of the biceps tendon are transferred to the antero-inferior glenoid rim at neck of scapula through the split subscapularis tendon

Normal post-operative findings:

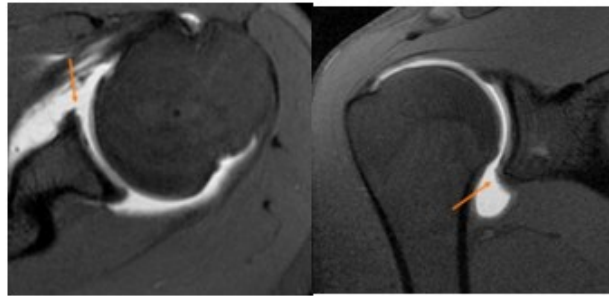
- Susceptibility artifacts from transglenoid sutures / anchor tracks
- Rounded appearance of repaired labrum
- Increased signal within repaired labrum (without an obvious defect)
- Nodular thickening of capsule & glenohumeral ligaments – especially following extranatomic procedure
- Marked thickening of the subscapularis tendon - - Putti-Platt procedure
- Mild superior subluxation of humeral head due to capsular tightening

Normal post-operative findings after labral debridement:

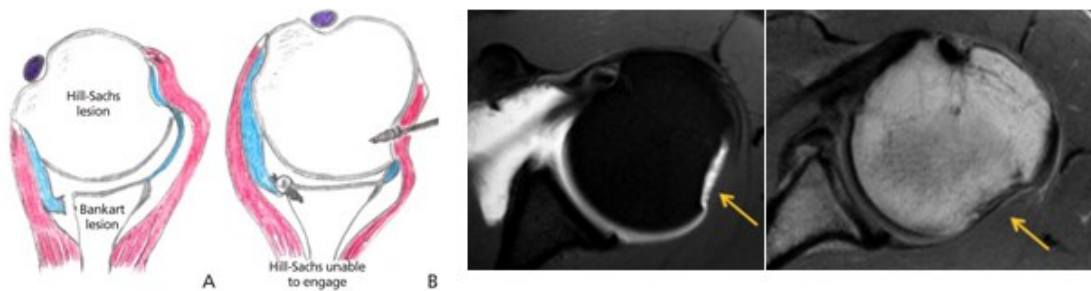
- Partial shaving or complete surgical resection of the labral fibrocartilage
- MRI
 - ❖ Blunted & diminutive labrum
 - ❖ Absent labrum
 - ❖ Reactive changes with marrow edema involving adjacent glenoid rim



Post-operative changes after successful Bankart repair



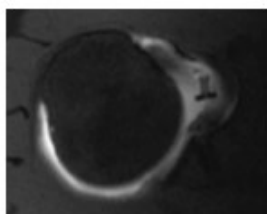
A small rounded and blunted antero-inferior labrum after debridement



Hill Sachs fracture treated with **Remplissage** – Infraspinatus tenodesis is done that makes the defect extra-articular and prevents engaging.

Abnormal post-operative findings:

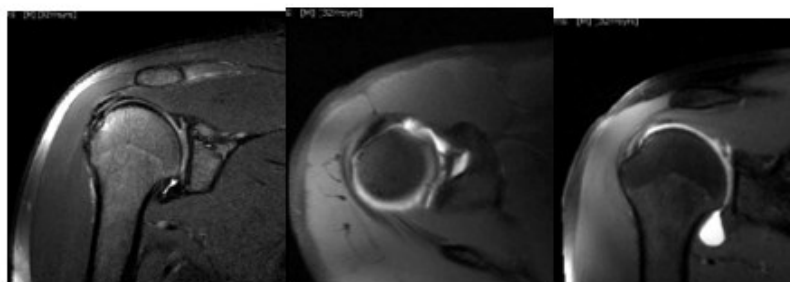
- Recurrent labral tear or instability
- Tear of capsule +/- subscapularis
- Non union of coracoid transfer
- Misplacement or migration of suture tracks or anchors e.g. protruding into joint / free floating in joint
- Osteoarthritis e.g. from loose suture anchors or from over tightening of the capsule



Displaced bio-absorbable tack



Exposed bio-absorbable suture anchors



SLAP re-tear

Abnormal post-operative findings on MRI

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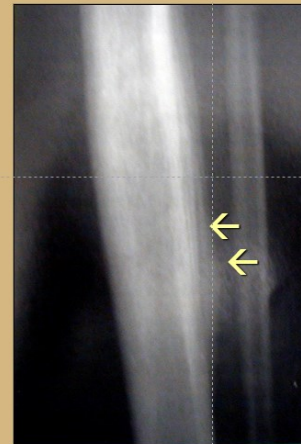
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FOOD SIGNS IN RADIOLOGY - Dr. Viral Parekh, DMRD, DNB.**ONION SKIN PERIOSTEAL REACTION****ONION SKIN PERIOSTEAL REACTION****ONION SKIN PERIOSTEAL REACTION**

- Lamellated periosteal reaction in which multiple concentric layers of new bone are laid down.
- The multiple layers of bone are thought to represent alternating periods of rapid and slow growth.
- Seen in Acute OM, Osteosarcoma and Ewing Sarcoma

HAMBURGER SIGN**HAMBURGER SIGN**

- Also known as naked facet sign.
- Refers to CT appearance of an uncovered vertebral articular facet when the facet joint is dislocated.
- Characteristic of a flexion-distraction injury and indicates severe ligamentous disruption and spinal instability.

SAUSAGE DIGIT SIGN



SAUSAGE DIGIT SIGN

- Sausage digit refers to the clinical and radiological appearance of diffuse fusiform swelling of a digit due to soft tissue inflammation from underlying arthritis or dactylitis.

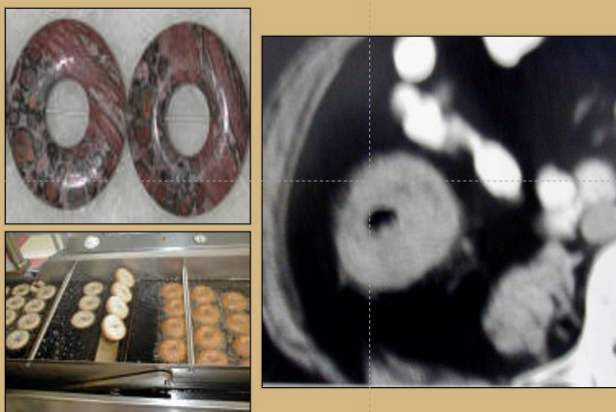
RICE GRAIN CALCIFICATION



RICE GRAIN CALCIFICATION

- Refers to ovoid flecks of calcification resembling grains of rice in the soft tissues.
- Characteristic of Cysticercosis.
- Calcifications are parallel to the long axis of muscle.

DONUT SIGN



DONUT SIGN

- Refers to circumferential bowel wall thickening in colon carcinoma, inflammatory bowel disease and intussusception.
- May also be seen in Nuclear medicine, which refers to testicular torsion.

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**A Platform For Radiology
Education & Interaction**

Calcutta Academy of Radiology was formed on international day of Radiology in 2019, that is on 8th. November, 2019 to promote Radiology education, keeping in mind Residents as well practicing Radiologists.

Since then we are on WhatsApp and Telegram, where thousands of cases have been discussed by members from all over the world and in the process we are sharing our experiences and helping each other. These social media platforms have turned out to be great learning tools.

We had organized a half day CME also on GI Radiology in February, 2020. We have plans to organize more such CME programmes in future when world recovers from this ongoing pandemic.

We are on YouTube also where we regularly post teaching videos and in the process try to propagate Radiology as much as possible.



Next issue will be published in August 2021

We will be bringing out such Newsletters with a frequency of one issue every two months. So, next issue will be published in August, 2021.

We are hereby inviting good interesting cases and original work from our fellow Radiologists, which will be published on merit basis.

So, I request all of you to contribute to this Newsletter. Please send your material in Word format with good quality images. Please send your photograph and details of your place of work with email address also.

Your material should reach us by 15th. Of July, 2021. You can send the word file to our abovementioned email address or you can WhatsApp it to above-mentioned three phone numbers.

On our YouTube channel, we are presenting a new case every week and there is good response to such teaching videos. I hereby request all Radiologists to share their teaching videos with us and if they contain good teaching material, we will surely publish it on our channel. So friends, during this trying time, stay away from depression by engaging yourself in academic activities.

Our Telegram group is lagging behind in academic activities as compared to two WhatsApp groups, so I request all of

you to join our Telegram group. Since, WhatsApp restricts the number of members to 256 only, whatever activity going on there is not helping the whole Radiology community.

Telegram can add up to whopping 200,000 members. So, if we post our study material there; it will reach to and benefit huge number of members.

So friends, take care and be safe.

So, see you all in next issue of CAR newsletter.

So long,

Anup Sadhu, Bijon Kundu and Viral Parekh.

